# Fight Water

**PLASTIMENT** 1
CONCRETE DENSIFIER AND RETARDER

**SIKA NO. 3A** 2
INTEGRAL FOR CONCRETE AND MORTAR

**SIKA NO. 1** 3
INTEGRAL FOR CEMENT COATS

**SIKA-KOTE** 4
COATING FOR CONCRETE AND MASONRY

**SIKA HARDENER** 5
FOR SURFACE IMPREGNATIONS

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CHECK LIST AND DESCRIPTION

Sika

**SIKA CHEMICAL CORPORATION**
MANUFACTURERS ▲ ENGINEERS
35 - 49 Gregory Ave. PASSAIC, N. J. Phone PAssaic 3-0607

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# NEW CONSTRUCTION

Produce "concrete-with-a-plus" with PLASTIMENT. Why tolerate poor performance in concrete when a few pennies more spent for PLASTIMENT insures high quality? PLASTIMENT is a scientifically prepared integral compound. It prolongs the life of concrete through increased densification with resultant impermeability, through increased retardation of set and reduced water content with resultant shrinkage reduction, through increased strength with resultant cracking reduction. Concrete once poured cannot be improved. Therefore, for that "plus" in concrete specify PLASTIMENT, the Concrete Densifier for which there is no equal.

## CONCRETE

### 1 For FLOORS *specify* PLASTIMENT

Concrete floors or mortar toppings dust due to cement accumulation, scum and surface laitance. They fail through cracking or crazing caused by shrinkage, insufficient strength or bond to steel. Injurious solutions cause scaling. Plastiment will overcome these defects. Tests and field installations prove that Plastiment (a) increases surface hardness between 25% and 35%, (b) increases flexural strength 15% to 20%, (c) increases adhesion to steel 30% to 100%, (d) increases resistance to injurious solutions 80% to 100%, (e) reduces shrinkage 15% to 20%, (f) reduces absorption 20% to 40%. Retarded set causes slower heat development, minimizes stresses and, therefore, crazing. The combination of these influences results in a superior concrete floor or mortar topping that dusts considerably less, resists abrasion, has longer life and durability than does untreated or surface treated concrete.

### 1 For SUB-STRUCTURES *specify* PLASTIMENT

Leaks through sub-surface concrete work are caused by faulty construction joints, honeycombs, or porous non-uniform sections. Plastiment effectively helps to produce water-tight concrete. It increases workability and uniformity. It reduces scum and laitance formation and retards setting time. This eliminates poor construction joints and "cold" joints. Decreased shrinkage and increased strength reduces cracking. Increased density prevents leakage through concrete.

### 1 For PRE-CAST CONCRETE *specify* PLASTIMENT

Plastiment performs equally well with light-weight or gravel or crushed stone aggregates. Its favorable influence on all properties of concrete results in precast products of high crushing strength, reduced absorption, crazing, and cracking. These characteristics are essential for concrete pipes, floor and roof slabs, concrete masonry units, lintels, columns and the like.

### 2 For WATER-TIGHTNESS *specify* SIKA NO. 3A

The use of Sika No. 3A integral water-resisting compound is necessary where close control of concrete proportioning is impossible. Sika No. 3A is recommended for all concrete in contact with earth, water, or dampness. (On projects requiring more than 200 cubic yards of concrete the use of Plastiment is advisable.)

Sika No. 3A will not only increase the plasticity of mortar or concrete but will improve and accelerate the crystallization of cement. It will act as an anti-freeze for concrete or mortar. The accelerated rate of hardening makes prolonged curing unnecessary. Increased workability of Sika No. 3A concrete results in greater uniformity. Less segregation takes place. Sika No. 3A permits a reduction in the water-cement ratio, therefore it increases density, water-tightness and ultimate strength.

● ***Specification:*** Mix all concrete (specify where—*in contact with earth or exposed to water or dampness*) with at least 5½ bags of cement per cubic yard. Add Sika Chemical Corporation's SIKA NO. 3A liquid to concrete mix in proportion of 1½ gallons per cubic yard of concrete. Execute all work in accord with Manufacturer's printed installation directions.

### 1 For TANKS, POOLS, etc., *specify* PLASTIMENT

Such structures are usually thin-walled and heavily reinforced. High adhesion to steel, low shrinkage, high density, and resistance to injurious solutions are important. Plastiment will considerably improve all properties named. (See heading: *For* FLOORS *specify* PLASTIMENT.)

The impermeability of Plastiment concrete reduces volume changes caused by alternate wetting and drying. As a result of more uniform and increased adhesion to steel, less deformation will occur under loading or unloading stresses. Crack formation is thereby reduced.

### 1 For STRUCTURAL CONCRETE *specify* PLASTIMENT

Plastiment is recommended for structural concrete above and below grade such as columns, beams, girders, exposed walls, slabs and the like. Impermeability of Plastiment concrete and uniform bond to steel prevents rusting of reinforcing and resultant concrete spalling. Reduced shrinkage and high flexural strength minimizes cracking. Higher uniform strength permits design of thinner members. This saves head room and weight.

### ● *Specification:* PLASTIMENT

DENSIFIER: Add Sika Chemical Corporation's PLASTIMENT reddish-brown, non-hygroscopic powder to concrete mix. Use in the following locations: (specify where — *concrete floors or mortar toppings; foundations; sub-surface concrete work; tunnel and shaft linings; pump concrete; pre-cast concrete; tanks; swimming pools; settlement basins; silos or other thin-walled, heavily reinforced structures; structural concrete, such as columns, slabs, girders, retaining walls and the like.)*

PLASTIMENT proportions: 1 pound per bag of cement, unless otherwise directed by Architect. Reduce water quantity when adding densifier to obtain same workability as for plain concrete. Execute all work in accord with Manufacturer's printed installation directions.

### SUPERVISION AND GUARANTEE

Sika Chemical Corporation will furnish at nominal cost the services of experienced field engineers to supervise concrete installations containing Plastiment or Sika integral water-resisting compounds. Where required, guarantee will be furnished covering the water-tightness of such installations.

● ***Specification:*** Contractor shall arrange with Sika Chemical Corporation of Passaic, N. J. for supervision and guarantee covering the water-tightness of concrete in which Manufacturer's products have been used. Contractor shall notify Manufacturer not less than 5 working days before concrete is to be placed. Contractor shall follow the recommendations of Manufacturer's supervisor.

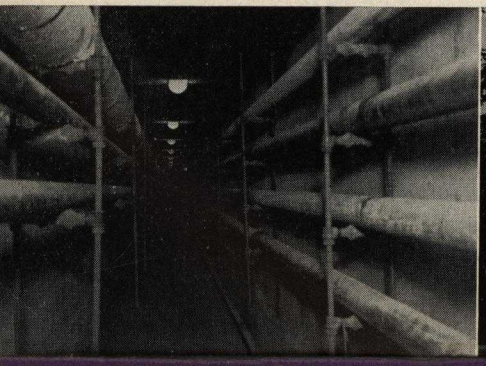
Contractor and Manufacturer shall guarantee the concrete to remain water-tight for a period of 5 years from the date of installation. This guarantee shall not be construed to hold the Manufacturer or Contractor responsible for leakage caused by circumstances beyond their control, such as leakage caused by settlement, expansion, contraction, shrinkage cracks, deterioration of concrete due to freezing, or damage from excessive use or abuse of the structure, or caused by any other circumstances beyond their control.

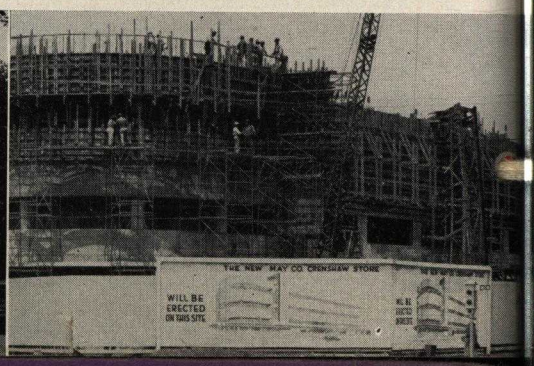
Contractor to supply labor, Manufacturer to furnish supervision and his materials without charge to the owner to repair and make water-tight during the guarantee period any leaking concrete not due to circumstances beyond their control.

**STEAM TUNNEL, BOGOTA, N. J.** *Owner:* George M. Brewster & Son. *Architect:* Voorhees, Walker, Foley & Smith, New York. *Contractor:* Frank W. Bogert, Hackensack. *Products:* PLASTIMENT in concrete, IGAS in joints.

**JULIUS FORSTMANN LIBRARY, PASSAIC, N. J.** *Owner:* City of Passaic. *Architect:* Hugh A. Kelly, Jersey City. *Contractor:* Frank W. Bogert, Hackensack. *Product:* SIKA NO. 3A in sub-structure, water-proofing guarantee and supervision.

**MAY COMPANY CRENSHAW STORE, LOS ANGELES, CALIF.** *Architects:* Albert C. Martin & Assoc., Los Angeles; Samuel A. Marx, Chicago. *Engineers:* Perliter & Soring, Los Angeles. *Contractor:* Joshua H. Marks Co. *Product:* PLASTIMENT in pump concrete for exterior walls and sign wings.





# MORTAR

## 3 For CEMENT COATS *specify* SIKA NO. 1

Sika No. 1 increases the water-tightness of mortar. It improves the crystallization of cement, fills voids, makes mortar water-repellent, and increases its adhesive properties. The decrease in absorption results in greater resistance to injurious solutions. One gallon of Sika No. 1 is required for 80 square feet of 1" thick water-resistant cement coats or toppings.

● ***Specification:*** Apply water-resistant cement coats on (specify where — *inside of structures below grade; exterior surfaces of cinder or concrete masonry unit construction; surfaces subject to continuous water pressure; boiler, elevator or other pits).* Prepare surfaces by hacking, cleaning and moistening. Apply 1½" thickness on floors, ¾" thickness on walls in form of bonding, water-resisting and finishing coats. Gage mortar with solution of 1 part Sika Chemical Corporation's SIKA NO. 1 in 10 parts water. Execute all work in accord with Manufacturer's printed installation directions.

## 2 For MASONRY MORTAR *specify* SIKA NO. 3A

Pre-cast building units such as bricks, concrete, cinder and glass blocks should be laid in plastic water-resisting mortar. Sika No. 3A will increase fattiness and plasticity of the mortar, accelerate its setting time and aid curing. It permits faster construction and acts as an anti-freeze during cold weather. It reduces bleeding of the cement mortar, increases its water-tightness and early and ultimate strengths. The proportion used is varied depending upon the temperature. Standard portland cement, blends of portland with natural cement or lime, or masonry cement are used to equal advantage.

● ***Specification:*** Gage mortar (specify where — *brick, stucco, pargeting and the like)* with a solution of 1 part Sika Chemical Corporation's SIKA NO. 3A in not more than 12 parts water. Execute all work in accord with the Manufacturer's printed installation directions. (Add regular mortar specification for mortar composition and its manner of placing.)

# SURFACE PROTECTION

## 4 For CONCRETE and MASONRY *specify* SIKA-KOTE

Sika-Kote will economically protect, decorate and preserve exterior and interior surfaces of concrete or masonry. Sika-Kote is a finely ground powder of cementitious nature manufactured in white or standard non-fading colors. Properly cured, Sika-Kote produces an eggshell-like finish free from dusting and flaking. It seals effectively against dampness. Two coats require approximately 1 pound of Sika-Kote for 10 square feet.

● ***Specification:*** Apply two brush coats of Sika Chemical Corporation's SIKA-KOTE (specify color) on masonry surfaces (specify where). Acid wash smooth surfaces. Properly patch imperfections. Saturate surface with water. Gage SIKA-KOTE powder with water to creamy consistency. Rub in first coat with a stiff fiber brush. Fill all pores. Paint the second coat on after the first coat has hardened. Keep work moist for two days. Execute all work in accord with Manufacturer's printed installation directions.

## 5 To HARDEN SURFACES *specify* SIKA HARDENER

Sika Hardener is manufactured in crystal form and as a solution ready to use. It neutralizes free lime and recrystallizes hydrated cement. It increases the resistance to injurious solutions. Two impregnations require 1 pound or 1 gallon of Sika Hardener for 50 to 80 square feet.

● ***Specification:*** Harden concrete floors and mortar toppings (specify where — *include inside of tanks and other surfaces)* with two impregnations of Sika Chemical Corporation's SIKA HARDENER. Mop solution liberally and uniformly on surfaces. Clean and dry surfaces to be treated before each impregnation. Execute all work in accord with Manufacturer's printed installation directions.

## 6 For DAMPPROOFING *specify* SIKA-SEAL

Sika-Seal forms a black, flexible, durable film. It has an excellent affinity for wet or dry concrete, mortar, steel and other metal or non-metal surfaces. Sika-Seal is not an emulsion. It protects against water or inorganic solutions. It is recommended as a primer for Igas Joint Sealer. A reflecting, silvery finish results by mixing 2 pounds aluminum powder per gallon of Sika-Seal. One gallon of Sika-Seal is required for 50 to 80 square feet for 2 coats or for 300 lineal feet of joints, 1" x 2" in size.

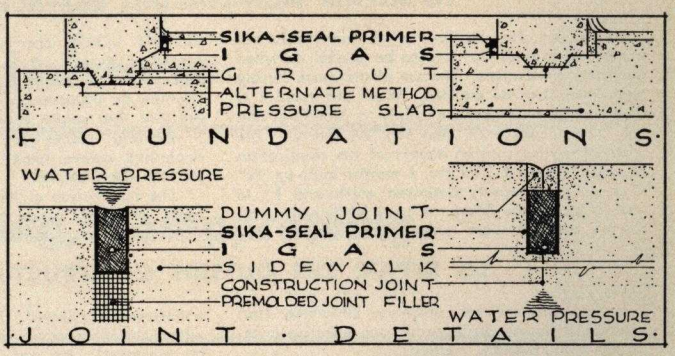
● ***Specification:*** Apply two brush coats of Sika Chemical Corporation's SIKA-SEAL on exterior masonry or concrete surfaces below grade (specify where — *include structural steel work, inside of tanks and the like).* Properly patch imperfections; cure surfaces. Rub in first coat with a stiff brush to fill all pores. Paint the second coat on after the first one has dried. Execute all work in accord with Manufacturer's printed installation directions.

# JOINTS AND CAULKING

## 7 For JOINTS *specify* IGAS JOINT SEALER

Contraction and expansion joints are effectively sealed by the installation of Igas Joint Sealer. Igas is a durable, non-drying black mastic manufactured in knife grade consistency. It will not form a skin, sag at high temperatures nor become brittle due to cold weather or age. It is resistant to water and to almost all acids, alkalies and injurious solutions. The joints are first primed with Sika-Seal, then filled with Igas. In case of back pressure Igas is covered with cement mortar. One gallon of Igas is required for every 25 lineal feet of joints ¾" wide by 1" deep.

● ***Specification:*** Provide expansion and contraction joints (specify where — *basements, swimming pools, tanks, between sidewalks and buildings, in sidewalks, pavements, between sections of retaining walls, around pipes, bolts, steel beams and the like)* when pouring concrete. After curing, clean and dry cuts thus formed. Impregnate the lower half of joints with Sika Chemical Corporation's SIKA-SEAL and fill with Sika Chemical Corporation's IGAS JOINT SEALER. Fill remainder of joint with cement mortar. Execute all work in accord with Manufacturer's printed installation directions.


SIKA-SEAL PRIMER
I G A S
G R O U T
ALTERNATE METHOD
PRESSURE SLAB
F O U N D A T I O N S
WATER PRESSURE
DUMMY JOINT
SIKA-SEAL PRIMER
I G A S
S I D E W A L K
CONSTRUCTION JOINT
PREMOLDED JOINT FILLER
WATER PRESSURE
J O I N T · D E T A I L S

## 8 For CAULKING *specify* SIKA CAULKING

Sika Caulking is a durable gun grade compound. It is non-staining and forms a thin, tough skin on the exposed surface. It does not sag or become brittle. Sika Caulking is also manufactured in colored grades to match adjacent work. Special types are gasoline and oil-resistant.

● ***Specification:*** Caulk all joints around exterior windows, door and louver frames, sills and coping joints with Sika Chemical Corporation's SIKA CAULKING. Clean and dry joints before caulking. Execute all work in accord with Manufacturer's printed installation directions.

**SEE PAGE 4 FOR MAINTENANCE PROBLEMS AND SOLUTIONS AND FOR CHECK LIST ON PRODUCTS**

LIBERTY TUBES, PITTSBURGH, PA. *Engineers:* Allegheny County Dept. of Public Works. *Contractor:* George Vang, Inc., Pittsburgh. *Products:* Joints sealed with quick-setting SIKAS and IGAS, Supervision and Guarantee furnished.

GLENSIDE SWIMMING POOL, CHELTENHAM TOWNSHIP, PA. *Engineer:* George Hesselbacher. *Contractor:* Township Forces. *Products:* IGAS JOINT SEALER, quick-setting Sikas, SIKA NO. 1.

BORG-WARNER CORPORATION, MUSKEGON, MICHIGAN PLANT. *Owner:* Norge Machine Products Division. *Own Engineers. Contractor:* Bitucrete Company, Detroit. *Product:* PLASTIMENT in floors.

# LET SIKA SOLVE YOUR CONCRETE PROBLEMS

Sika Chemical Corporation's Field Engineers are experienced construction men with an intimate knowledge of current practices, competent to suggest the best and most economical solution to any waterproofing and dampproofing problem. Detailed specifications, information and sketches are available on problems of new construction and repair work. Our Engineering Department is at your service.

## 9 MAINTENANCE

### PROBLEMS AND SOLUTIONS

#### TO SEAL LEAKS AGAINST PRESSURE

Leaks are easily and effectively sealed on the exposed side with quick-setting Sika mortar. It is not necessary to relieve the pressure. Sika No. 2 is used against heavy pressure or against bleeders, Sika No. 4A against seepage, Sika No. 3 under still water.

Small quantities of cement are mixed with the Sika liquids. The resulting quick-setting mortar is applied directly against the hacked, leaking concrete surface. Sika No. 3 and Sika No. 4A may be diluted with water and mixed with cement and sand. The setting time can be controlled thereby and slight seepage or dampness sealed effectively with such cement-sand mortar.

Neat cement mixed with Sika No. 2 will produce mortar with an initial set of 20 seconds, a final set of 30 seconds. Sika No. 3 and Sika No. 4A mortars have an initial set of less than 1 minute, a final set of less than 5 minutes.

After all leaks are dried with Sika No. 4A or in bad cases with Sika No. 2 mortar, protective Sika No. 1 water-resisting cement coats are applied. (See heading: *For* CEMENT COATS *specify* SIKA NO. 1 on preceding page.)

#### TO SEAL JOINTS OR CRACKS

Igas Joint Sealer will seal joints and cracks even against pressure and continual movement. Igas will not sag, dry out, become brittle, or lose its adhesion. Rigid cement mortar cracks and permits leakage when movement occurs, but Igas will expand and contract and thereby durably seal the joints.

Joints and cracks are cut out. If leaking, they are dried with quick-setting Sika mortar as outlined above. Sika-Seal primer is applied and the cut filled in layers with Igas Joint Sealer. Igas is left exposed where water pressure is exerted against the face of the joint, such as in sidewalks, inside of tanks and the like.

Covering with cement mortar is necessary where back pressure is anticipated, such as in tunnels, basements, retaining walls and the like.

#### TO REPAIR NON-LEAKING SURFACES

Work can often be done when water does not penetrate through surfaces to be sealed or when only dampness exists. The use of the quick-setting Sikas may then be omitted. When the surface is damp it is necessary to apply a bonding and one trowel coat with Sika No. 4A mortar. The work otherwise consists simply of the application of water-resistant Sika No. 1 mortar built up ¾" thick on the properly prepared walls and 1" to 1½" thick on the floors. A cove is formed at all corners and all work cured. (See heading: *For* CEMENT COATS *specify* SIKA NO. 1, on the preceding page). It is to be ascertained that walls, and particularly floors, are of sufficient strength to withstand any later developing water pressure that might cause cracking.

Existing cracks or joints are treated as explained above under the heading: TO SEAL JOINTS OR CRACKS.

The application of Sika-Kote instead of trowel coats prevents future penetration of moisture where no actual water pressure exists.

#### TO REPAIR THE OUTSIDE OF STRUCTURES

Brick, concrete, or masonry structures that develop leaks or disintegrate are effectively repaired using various methods.

Good results are obtained with stucco or gunite coats containing either Sika No. 3A or Gunite Sika. If desired, surface treatments may be applied in addition thereto. Satisfactory work is also obtained by cutting out and patching imperfections and applying Sika-Kote. This can be followed by impregnations of Sika Transparent, water-repellent liquid. This product is also used where the appearance of a brick building has to be preserved. For very porous brick work one coat of Sika Wax Emulsion should be given instead of Sika Transparent. Before impregnations start all joints are to be pointed or slushed. Curing of all cement work is important. It is essential that all copings, window and door frames, sills and lintels are properly caulked with Sika Caulking, gun grade.

#### TO PLACE GUNITE OR PRESSURE GROUT

When guniting is done against leaking concrete, rock and the like or on structures exposed to the tides, the mortar has to set before water washes it away. With 6 pounds or over of Gunite Sika per bag of cement, the mortar will have an initial set of less than 1 minute and a final set of less than 10 minutes. Smaller proportions are used to increase the adhesion of gunite mortar to damp or dry areas and to increase its water-resisting qualities.

It is often necessary to accelerate the hardening rate of cement grout when foundations of dams, powerhouses, or rock adjoining tunnels or shafts are grouted to consolidate the sub-grade or to seal underground currents or washouts.

Sika No. 4 diluted with water will accelerate the set and in addition thereto increase the adhesion of grout to rock and the cohesion of the mortar so that it is not washed away.

To pressure grout fine fissures or where no running water occurs Plastiment is to be added to the grout to delay its set and to increase its penetrating power, strength and adhesion.

## 10 PRODUCTS

### CHECK LIST

**PLASTIMENT** ***Reddish-brown Powder*** — Concrete densifier and retarder.

**SIKA NO. 1** ***Yellow Paste*** — Integral for water-resistant cement coats.

**SIKA NO. 2** ***Red Liquid*** — Quick-setting sealer for heavy pressure leakage.

**SIKA NO. 3** ***Green Liquid*** — Accelerator for neat cement or mortar.

**SIKA NO. 3A** ***Yellow Liquid*** — Integral water-resisting plasticizer, accelerator and anti-freeze compound for concrete and masonry mortar.

**SIKA NO. 4 (Grout-Sika)** ***Brown Liquid*** — Accelerating, bonding, and oil-resisting compound for cement, mortar and pressure grout.

**SIKA NO. 4A** ***Pale Liquid*** — Quick-setting sealer for moderate pressure leakage.

**SIKA CAULKING** — Gray or colors. Gun grade caulking compound.

**SIKA CLEAR COATING** — Resinous impregnation for acid and alkali resistant floors.

**SIKA HARDENER** ***Crystals or Liquid*** — Surface impregnation for new or old concrete.

**SIKA RETARDENT FORM COATING** ***White Liquid*** — Delays setting adjacent to forms; eliminates hacking prior to surface treatments.

**SIKA VINYL COATINGS** ***Clear and Colors*** — Acid, alkali, oil, and corrosion resistant coating for floors, tanks, etc.

**SIKA-KOTE** ***Powder*** — Cementitious coating for concrete and masonry; white, colors.

**SIKA-SEAL** ***Black Liquid*** — Protective dampproofing coating and primer for concrete, masonry and steel.

**SIKA TRANSPARENT (Conservado No. 5)** ***Colorless Liquid*** — Water-repellent impregnation.

**SIKA WAX EMULSION** ***White Liquid*** — Water-repellent impregnation for porous masonry.

**BINDA** ***Powder*** — Tile-setting compound.

**GUNITE SIKA** ***Gray Powder*** — Accelerating and water-resisting compound for gunite mortar.

**IGAS JOINT SEALER** ***Black Mastic*** — Knife grade expansion and contraction joint compound.

**KEMOX A** ***Granules*** — Metallic Floor Hardener.

**KEMOX B** ***Fine Granules*** — Metallic compound for expanding, grouting and water-resisting mortar.

**PLASTOCRETE** ***Powder*** — Plasticizer for concrete or mortar.

**SIGUNIT** ***Gray Powder*** — Accelerator for pneumatically-applied mortar.

SIKA, IGAS, KEMOX, PLASTIMENT, PLASTOCRETE, BINDA, SIGUNIT and CONSERVADO, trademarks registered—United States Patent Office.

**SIKA CHEMICAL CORPORATION**

MANUFACTURERS ▲ ENGINEERS

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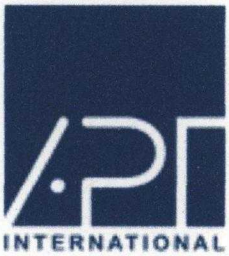


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